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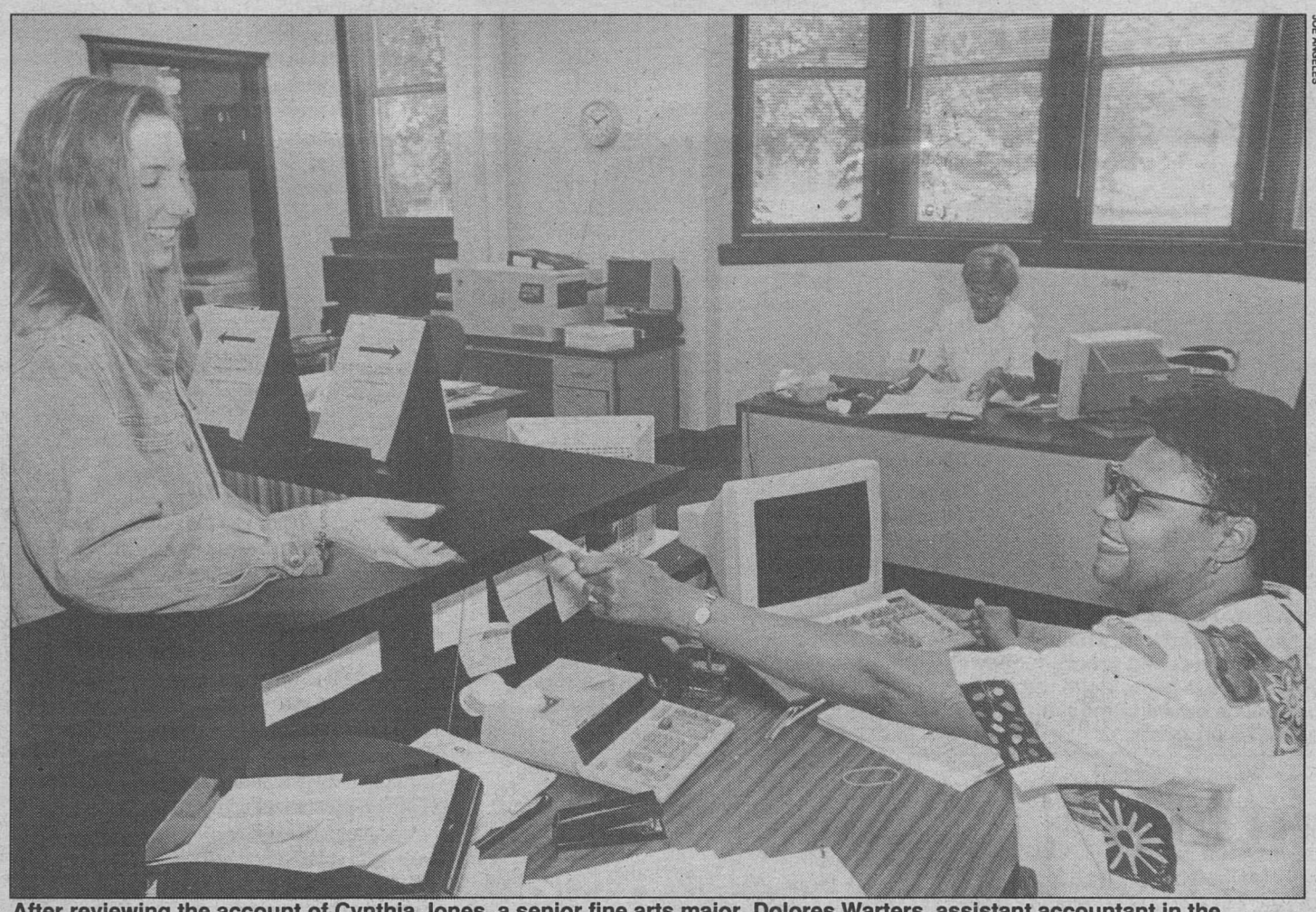

JOE ANGELES

After reviewing the account of Cynthia Jones, a senior fine arts major, Dolores Warters, assistant accountant in the Student Accounting Office, returns her ID card.

Nuts and Bolts

Front-line staff works together to improve service to students

The image of a student bouncing from office to office to find the answer to a single question is becoming obsolete as new lines of communication spread throughout Brookings Hall and the entire University.

For more than a year, department managers and deans from the schools have been meeting regularly to discuss ways of improving the University for students and other priorities. Several months ago, a group of front-line staff members began meeting with the same goal. Like the University Management Team, this smaller — but equally enthusiastic — group is operating under the assumption that cross-departmental teamwork is the key to improving service to students.

The Nuts and Bolts Committee is made up of front-line staff from several offices that directly serve students (i.e. the offices of the Registrar, Student Accounting, Student Loans, Cashier, Financial Aid, Undergraduate Admission, College of Arts and Sciences and Residential Life).

Efforts to "improve Washington University for students" were reinforced when student focus groups facilitated by the Current Student Experience Cluster (CSEC) revealed frustration with the execution of some services. Some students said they felt some University employees could be more empathic, approachable and helpful. University employees took this to heart. The resulting Nuts and Bolts Committee is really a staff-initiated offshoot of the University Management Team, the CSEC and the Brookings Team, a group of administrators from offices that service students.

"This committee has really changed the air around here," said Ginger Willenborg, assistant manager for student accounting. "It brings us back to the basics of why we are all here and has made us stop and think. After you've been here so many years, you stop thinking about why you are doing something, you just do it. Now I stop and think, 'Why am I doing this process?'"

One of the first things the 12-member committee did was bring in the five most frequently student-asked questions in their areas. For example, Jean Gaines, associate University registrar, and Chris Deutschmann, student information assistant in the Registrar's Office, submitted the following questions often asked in the Registrar's Office: Where can I validate my ID?; Can I change my address?; Where can I get my transcript?; and How can I get my hold released?

Willenborg and Dolores Warters, assistant accountant, submitted the following questions often asked in the Student Accounting Office: How can I get a reprint of my bill?; There are no charges on my bill — is there a problem?; What is the student activity fee and what is it used for?; and Have you received my tuition payment?

Karen Ruder, first-year and transfer student information service coordinator, and Deanna Eime, assistant director of financial aid, said front-line staff in the Office of Financial Aid is most often asked: Do I send my Financial Aid Transcript to the Registrar's Office?; Why isn't my financial aid on my bill?; I received a letter that my Stafford Loan was in — why don't I have it?; and Why haven't I received my Perkins refund?

By posing and answering these and many more questions, each committee member learned the appropriate way to respond to questions outside of his or her realm of expertise. Committee representatives of each office shared the questions and answers with their co-workers in subsequent staff meetings, enabling the entire front line to answer myriad questions.

"The process gives everyone more knowledge," said Alan Steigelman, manager of the Student Accounting Office. "If we can't answer a student's question, we know the person who can and can save the students from being shuffled around. Also, by bringing people from different departments together on a regular basis, we feel more comfortable using each other as resources."

The Nuts and Bolts Committee also invited staff representatives from student-oriented offices to "walk them through" their part in the student experience.

Continued on page 5

Undergraduate task force makes recommendations

Living/Learning Centers in the residence halls and the introduction of a three-way teacher evaluation system are two of many recommendations proposed by the Task Force on Undergraduate Education in its preliminary report.

Since Provost Edward S. Macias, Ph.D., appointed the task force 17 months ago, the 27-member group of faculty, staff and students has looked at the undergraduate student experience and ways to improve it. Despite the task force's extensive examination, one of its conclusions is that more work remains.

"There was more to be done than we could do," said Burton Wheeler, Ph.D., chair of the task force and professor of English. Wheeler summarized the preliminary report at the May 3 meeting of the University Management Team.

To ensure that the work continues, the task force has recommended that a permanent body, the Council on Undergraduate Education, be established. The council would include faculty, staff and student representatives from all of the undergraduate schools, and a core committee would pursue the task force's recommendations and implement decisions made by the council.

The final report of the task force will not be completed until September, but Wheeler said the preliminary report was released so that discussion of the recommendations can begin. "We hope to accelerate discussion and consensus building," he said. Specifically, the recommendations are meant to spur discussion and argument on what makes good teaching.

During the 1992-93 academic year, the task force focused on the first-year student experience, and released recommendations for improvement in the "Draft of the First Year Report." During the 1993-94 academic year, the task force divided itself into three subcommittees: Teaching and Learning; Academic Setting and Environment; and Academic Structure and Procedures. The task force's report to be released this fall will contain all of the major points addressed by these subcommittees.

To find ways to improve the undergraduate experience, the task force went to the source — students. Over the past year the task force met with six to seven student groups ranging in number from 25 to 50. "We're getting two messages," Wheeler said of those meetings. "In the classroom, students give high rankings to course evaluations. Outside of the classroom, students express concern toward certain things."

Community issues

Many students living in the residence halls on the South Forty, for example, said they feel isolated and cited the need for more faculty interaction outside the class-

Continued on page 6

Sen. Bill Bradley, poet Rita Dove among honorary degree recipients

The nation's poet laureate and Kenya's most ardent wildlife conservationist are among the six who will receive honorary degrees from Washington University during its 133rd Commencement May 20. The University will bestow degrees on approximately 2,400 students during the ceremony.

The ceremony begins at 8:30 a.m. with the traditional academic procession into Brookings Quadrangle.

Bill Bradley, the senior U.S. senator from New Jersey, will deliver the Commencement address. His talk is titled "America's Changing World: New Economy, New Diversity, New Challenges." During the ceremony, he will receive an honorary doctor of humanities.

The other honorary degree recipients are Rita F. Dove, a Pulitzer Prize winner and poet laureate of the United States, doctor of letters; Richard E. Leakey, renowned paleoanthropologist and wildlife conservationist, doctor of science; Jane Loevinger, Ph.D., a Washington University professor and an internationally recognized authority on psychological measurement, doctor of humane letters; I. E. Millstone, engineer, construction company founder, philanthropist and civic leader, doctor of laws; and Ernst L. Wynder, M.D., a pioneer in the field of preventive medicine who was the first researcher to demonstrate a link be-

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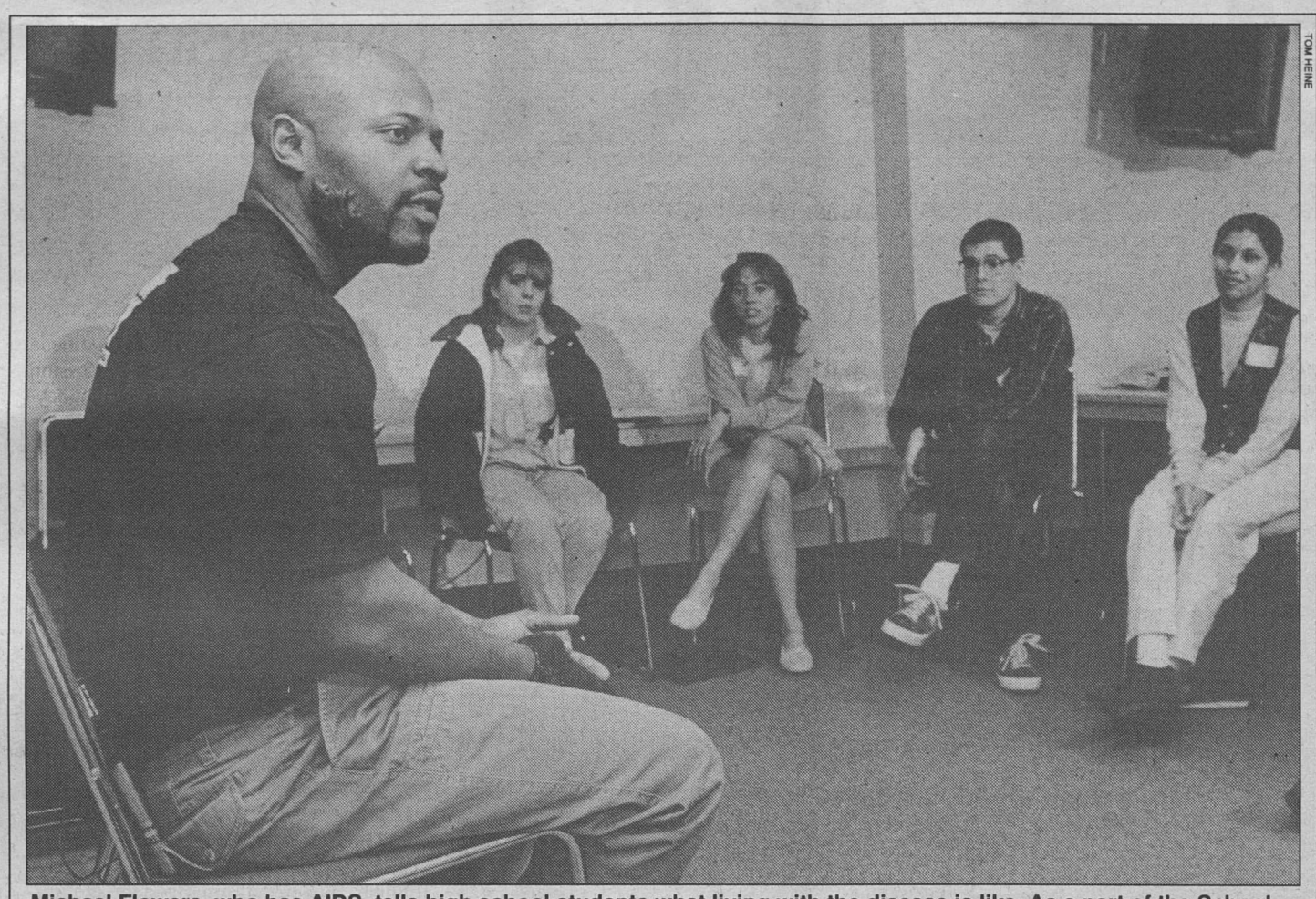
In this issue ...

Medical Update



TOM HEINE

Michael Flowers, who has AIDS, tells high school students what living with the disease is like. As a part of the School of Medicine STATS (Students Teaching AIDS to Students) program, Flowers and other people with AIDS accompany medical students to area schools to talk about prevention. Recently, three second-year medical students, Scott Sagel, Debbie Lindes and David Serlin, won a first-place award at the annual American College of Preventive Medicine meeting for a poster presentation on the STATS program.

School coordinates glaucoma study

The School of Medicine is coordinating a new 21-center study to determine whether reducing eye pressure with medication can prevent or delay glaucoma.

The study, called the Ocular Hypertension Treatment Study (OHTS), is sponsored by the National Eye Institute of the National Institutes of Health. Its purpose is to determine whether use of eye drops that lower intraocular pressure can prevent or delay the onset of glaucoma in patients with ocular hypertension. Ocular hypertension, or high fluid pressure inside the eye, is recognized as a major risk factor that may lead to glaucoma.

"Currently there are no clear scientific guidelines to follow for treatment of patients with ocular hypertension who have not yet developed glaucoma," says Michael A. Kass, M.D., national study chairman and professor of ophthalmology and visual sciences.

Published studies are divided between those that find early medical intervention to be effective in preventing or delaying glaucomatous damage in ocular hypertensives and those that do not. Even though there is no conclusive evidence that lowering pressure is an effective treatment, many physicians still prescribe eye drops that lower intraocular pressure, Kass said.

Clinical centers, including the medical school, now are recruiting study volunteers. Martin B. Wax, M.D., associate professor of ophthalmology and visual sciences, is principal investigator of the Washington University clinical center. He says volunteers should be between 40 to 80 years of age with relatively good vision.

Because the study is trying to determine whether lowering pressure can delay glaucoma, those with advanced disease are not eligible.

Those currently using drops to lower intraocular pressure will be asked to stop before they are eligible to participate.

In all, 1,500 ocular hypertensive patients around the United States will be enrolled in the study. They will be followed for at least five years. Patients will be assigned randomly to either medical treatment or to close observation. Treatment, which is provided free of charge, consists of commercially available prescription eye drops used to lower intraocular pressure.

For more information, call Arnold Jones, study coordinator, at 362-4175.

Diabetes treatment

Researchers find intensive therapy safe for newly diagnosed children

Children newly diagnosed with diabetes can safely and feasibly follow intensive therapy for the disease, according to researchers at the School of Medicine.

This finding, said principal investigator Neil H. White, M.D., lays the foundation for determining whether strictly controlling blood sugar levels in newly diagnosed diabetic children can preserve pancreatic function and thus the ability to still produce some insulin. Children who begin treatment immediately after diagnosis still may have 10 to 15 percent of their pancreatic function.

"The thinking in diabetes is that a little bit of your own insulin will go a long way. Holding on to your islet cell function, even a little, is important," said White, associate professor of pediatrics. He presented his findings recently in Seattle at the annual combined meeting of the American Pediatric Society, the Society for Pediatric Research and the Ambulatory Pediatric Association.

Patients on intensive therapy take two to four insulin injections a day, as opposed to one or two doses in conventional therapy. They also exercise and adjust insulin doses according to food intake and blood sugars. In addition, they perform blood sugar tests four or more times a day by pricking their fingers.

Recently, in a large nine-year diabetes study called the Diabetes Control and Complications Trial (DCCT), researchers found that strictly controlling blood sugar levels reduces damage to eyes, kidneys and nerves. This study ended a decades-old debate about whether keeping blood sugar levels as close to normal as possible would prevent or delay long-term complications.

The DCCT did not look at whether strictly controlling blood sugar levels had any long-term impact on pancreatic function because the patients in the study no longer were producing insulin when they began.

However, White said, other studies have suggested that tight control of diabetes may preserve some of the islet cell function in the pancreas. Islet cells in the pancreas produce insulin.

"Although intensive therapy has had limited experience in children, this population may benefit the most from this kind of therapy," he said.

White and his colleagues followed 34 children with new-onset insulin-dependent diabetes mellitus (IDDM) for 18 months. Patients, who were 6 to 18 years old, randomly were assigned to a control group or an intensive group. Children in the control group used conventional therapy to manage their diabetes, and children in the other group followed intensive therapy.

Patients in both groups were able to lower blood sugar levels, the goal of diabetes management, and parents and children did not report any difference in quality of life and health status between the groups. However, patients in the intensive group had lower blood sugars They also were at increased risk of suffering hypoglycemia.

White said patients in the intensive group in the DCCT also had this problem, but hypoglycemia is manageable. "It's a question of whether it's worth the risk," he said. The researchers conducting the DCCT concluded that the benefits of intensive therapy outweigh the risk of hypoglycemia in adolescent and adult patients supervised by experts.

White said his study is a stepping stone for figuring out if some of the pancreatic function of children with newly diagnosed diabetes can be saved. "We now know that intensive therapy is feasible in children. In 1995, we should know if children's pancreases will be preserved."

White also points out that the National Institutes of Health recently has started a study to determine whether diabetes can be prevented before its onset in relatives at high risk for developing diabetes. This study, the Diabetes Prevention Trial Type 1 Diabetes (DPT-1), will determine whether small doses of insulin can prevent the onset of diabetes. White will oversee this study for the medical school.

—Diane Duke

Study evaluates possible treatment for improved lung cancer survival

Researchers at the School of Medicine's Mallinckrodt Institute of Radiology are participating in a national study to evaluate a new treatment approach that may improve survival for certain lung cancer patients.

The new approach is designed to benefit patients with non-small cell lung cancer whose cancer has spread into lymph nodes in the center of the chest. The majority of these cancers are found in smokers or "secondary" smokers. Lung cancer is the number one cancer killer in men and women.

These patients traditionally have been treated with radiation therapy alone, said principal investigator Mary Graham, M.D., instructor of radiology. Their survival rates have been bleak, with five-year survival rates rarely exceeding 10 percent. Part of the reason for low survival is that the cancer spreads quickly to other parts of the body, she said. The presence of cancer in the lymph nodes is a sign this spread is likely.

The study will determine whether adding chemotherapy or surgery to traditional treatment might provide an advantage, Graham said.

"We now know from recent studies that a combined approach using radiation therapy and chemotherapy helps keep the disease from spreading and improves survival," said Graham. The national study will provide further information by evaluating the combined approach in a larger number of patients.

All eligible participants will receive the same initial radiation therapy and chemotherapy, then half will receive additional radiation and chemotherapy, and half will undergo surgery. The study will determine which approach is best.

"We want to know if we can improve survival with chemotherapy and radiation therapy, or if surgery is also necessary," Graham explained.

For information, contact Graham at 362-8503.

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Washington People

Father of PET keeps looking for answers

Twenty years ago, a new medical technology began in the form of an awkward-looking machine dubbed "The Chicken" by its creator, Michel M. Ter-Pogossian, Ph.D., and his collaborators. They thought the machine's array of protruding tubes and wires looked like a rooster's comb. Today the technology, known as positron emission tomography or PET, exists as sleek, futuristic machines that give medical researchers an invaluable window into the human body.

Unlike most other radiologic techniques, PET illustrates function rather than form. PET machines record signals from radioactive tracers inside a patient's body. A computer transforms the signals into colorful, cross-sectional images that reveal biochemical activities of organs and cells. Since Ter-Pogossian led PET's development in the early 1970s, investigators have used it to study brain function, cancer, mental illness, heart disease and a host of other medical issues.

It is not surprising that colleagues describe Ter-Pogossian, professor of radiation sciences at the School of Medicine's Mallinckrodt Institute of Radiology, as a thinker and a creative problem solver. A physicist by training, he is well known as a pioneer in putting radioactive substances to use in medical research. His early accomplishments include: creating one of the first scanning devices for detecting radioactivity concentration in living material in 1951, developing a new tool for delivering radiation therapy for cancers of the cervix and uterus, and being the first to use radioactive tracers to locate brain tumors.

But he is best known as the father of PET. In the early 1950s, he was among the first to realize the potential of the short-lived radioactive tracers that now are a key component of PET imaging. He developed PET to take full advantage of these tracers and has played a key role in its evolution ever since.

Ter-Pogossian entered the world of science early, while he was a child in France. He conducted miniature experiments with toy physics and chemistry sets in a closet of his family's apartment. The interest stuck with him; in 1943 he earned a mathematics degree from the University of Paris, the degree required for students pursuing science careers. Then World War II complicated his life.

"It was a difficult time. Many of our family friends were arrested, and many of them who were Jewish never came back," he said. He became interested in joining war resistance efforts. Ter-Pogossian's father, out of concern for his son's academic future, told him he must continue his education either in England or the United States. The younger Ter-Pogossian thought the United States would be "more exciting," and he left Europe in 1946.

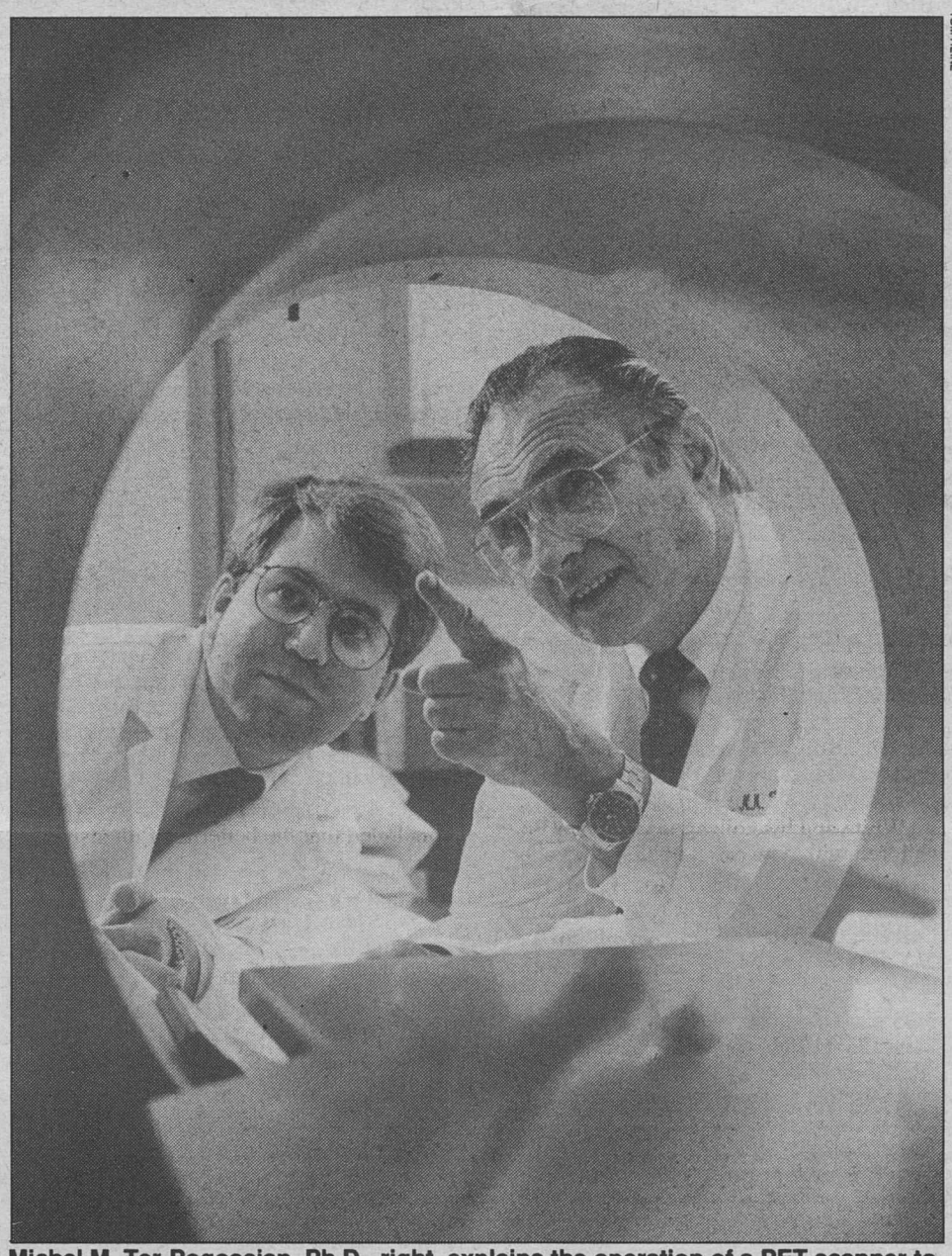
He was drawn to Washington University partly because its chancellor at the time was Arthur Holly Compton, a Nobel laureate who described a fundamental physics concept now called the Compton Effect. Ter-Pogossian joined the Department of Physics in 1946 as a research assistant. He earned a master's degree from the University in 1948 and a doctoral degree in nuclear physics in 1950. A short time later he became interested in medicine and took a position at Mallinckrodt Institute of Radiology.

PET evolved from his interest in using short-lived radioactive tracers, or isotopes, for studying chemical processes in the body. They were called short lived because their radiation disappeared within minutes. Researchers had used other types of radioactive tracers since the 1940s, substances such as iodine and phosphorous. Ter-Pogossian thought short-lived isotopes of oxygen, nitrogen and carbon would be more valuable because, unlike previously used tracers, these participated directly in the body's chemical activities.

He and his colleagues did experiments on brain metabolism and blood flow with isotopes produced by a mammoth machine called a cyclotron located on the Hilltop Campus. Their studies were so encouraging that funding was sought for a new cyclotron at the Medical Center. It was installed in 1964 as the first cyclotron in a U.S. medical center. Ter-Pogossian then recruited an extraordinarily varied group of researchers — neurologists, cardiologists, chemists, physicists, computer scientists, electrical engineers, pulmonologists and others — to contribute to the work.

Ter-Pogossian's inspiration for PET came when he witnessed early development of another new imaging technology called computed tomography, or CT. In the early 1970s, he and other Washington University investigators collaborated with CT's developer, a company called EMI. CT uses X-rays and computers to create cross-sectional images. When the Washington University team helped EMI develop the first CT machine for body imaging, Ter-Pogossian was the first volunteer. "The first images on a body system were of my body. I still have them," he said.

At the time, he and his colleagues needed radiation detectors that would provide more information about their isotopes' distribution in the body. It occurred to Ter-Pogossian that a system similar to CT might apply to his isotope studies. He started on PET in 1971. "The Chicken" was one of the first models, and in 1974 the first machine designed for humans was finished. Since then, he has guided development of several generations of PET technology. The machines now are produced commercially to meet the growing demand from medical researchers all over the world.



TOM HEINE

Michel M. Ter-Pogossian, Ph.D., right, explains the operation of a PET scanner to fourth-year medical student Rob Southwick.

> "You are continuously trying to find something ... no matter what."

To perform a PET exam, patients are injected with or inhale a biologically important substance, such as glucose, which is labeled with a low-level radioactive tracer. The tracers are considered extremely safe because they decay quickly and are given in low doses. The labeled substance makes its way through the body and takes up its normal biological tasks. A donut-shaped ring of radiation detectors records the tracer's location over time. Computers produce slice-by-slice images of tracer distribution in red, yellow, green, blue and black.

Researchers can ask a variety of questions with PET by using an appropriate tracer. For example, a PET scan of the brain with glucose could show which cells were most active; energy-rich glucose molecules would accumulate in the most active, energy-burning cells and appear as bright spots on a PET image.

Brain research is one of PET's most promising applications. "PET has allowed us to look at the human nervous system in ways we simply could not do before," said Marc Raichle, M.D., professor of neurology and radiology. Raichle and his colleagues have identified regions of the brain responsible for speaking, reading, attention and memory with PET. For the first time, researchers are learning not just what the brain looks like, but how it works. "This will hopefully provide us a better understanding of everything from stroke-related disabilities to why some children can't learn to read," he said.

Neurologists also are looking for brain abnormalities from illnesses such as Parkinson's disease and depression. "What's emerging are new insights into diseases that have been mysterious in the past simply because they don't leave any gross anatomical evidence of what's wrong," Raichle said. Ter-Pogossian is looking into developing a PET machine designed just for head studies.

According to Barry Siegel, M.D., professor of radiology and medicine, PET is proving its value in cancer research as well. "PET has the ability to answer questions in specific patients that no other technology can answer," he said. For the most common cancers, PET can show whether the disease has spread beyond the local tumor. "Most malignant tumors take up increased amounts of the most commonly used PET tracer. Consequently, when you do a PET scan, tumors show up as little light bulbs on the images." That information dramatically affects how a patient is treated, he explained.

In heart research, PET scans of oxygen use and blood flow help determine whether a patient's heart muscle is healthy enough to benefit from surgery, said Steven Bergmann, M.D., Ph.D., associate professor of medicine and radiology. This decision can be difficult to make with other methods, he said. PET also shows whether a narrow spot in a blood vessel is dangerous. Conventional tests can show the size of a vessel's interior. But by actually measuring the amount of blood flowing through the vessel with PET, "you can see whether a narrowing in the vessel is really limiting the heart's ability to get enough blood," said Bergmann.

Although Ter-Pogossian is happy PET has found clinical uses, he predicts its biggest value in the future will be for basic research. "The most important application of PET will be as a tool that allows us to understand processes fundamental to life that cannot be probed by any other means," he said.

Ter-Pogossian knew from the beginning PET would be an important research tool, said Ronald Evens, M.D., head of the Department of Radiology and director of Mallinckrodt Institute. Ter-Pogossian's early push for an interdisciplinary approach was a key to PET's success, added Raichle. "He gathered the right people together at the right time, and that combination of people was unbelievably productive."

Ter-Pogossian also has been a willing mentor for researchers interested in PET, colleagues say. "He's been incredibly supportive of my career and my studies. He really tries to foster the use of PET," said Bergmann. In fact, nearly all of the world's leading PET researchers have been members of the Ter-Pogossian group at one time or another. He also has made sure the radiation sciences division, which he led from 1973 to 1990, is in good hands when he retires eventually, added Evens. Michael Welch, Ph.D., professor of radiation sciences, trained with Ter-Pogossian and took over the division in 1990.

In 1993, Ter-Pogossian received the Gairdner Foundation International Award, famous for predicting Nobel Prize winners. To date, 40 of its 225 recipients also earned a Nobel Prize. His other honors include the Herrman Blumgart Pioneer Award and the Paul Aebersold Award, the highest recognition for science bestowed by the Society of Nuclear Medicine.

Ter-Pogossian said one reason he has stayed at Washington University so long is that he found a collegial atmosphere here from the start; most investigators are more interested in collaborating than in competing. One good example, he said, is that in his early days at the medical school several researchers helped him learn the medical background he lacked.

Now 68, he said he has no desire to give up research. After more than 40 years of academic life, "you become a research junkie," he explained. "You are continuously trying to find something — like golfers trying to improve their score, no matter what. You are trying to understand things, to improve the concepts that we have of what surrounds us. After a while, you just look at the world that way. I think it's impossible to give up."

— Juli Leistner

Calendar

May 12–21

Exhibitions

"Bachelor of Fine Arts." Features creations by senior bachelor of fine arts students. (Opening: 5-7 p.m. May 13.) Through May 22. Gallery of Art, upper gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. 935-5490.

"Paracelsus, Five Hundred Years." Through July 15. Glaser Gallery, School of Medicine Library. Hours: 9 a.m.-9 p.m. weekdays; 1-5 p.m. weekends. 362-7080.

"The Authenticated Word: Victorian Illustrated Books, 1820-1900." Through July 1. Olin Library, Special Collections, level five. Hours: 8:30 a.m.-5 p.m. weekdays. 935-5495.

"Core Show." Features works of first-year and sophomore art students. Sponsored by the School of Fine Arts. Through May 22. Bixby Gallery, Bixby Hall. Hours: 10 a.m.-4 p.m. weekdays; 1-5 p.m. weekends. 935-6597.

Lectures

Thursday, May 12

Noon. Genetics seminar. "A Regulator of rab GTPases in *Drosophila* Development," Clarissa M. Cheney, asst. prof., Dept. of Genetics. Room 816 McDonnell Medical Sciences Bldg. 362-7072.

3 p.m. Molecular genetics thesis defense. "Dissection of the Interactions That Allow *E. Coli* RNA Polymerase to Recognize a Multicomponent Pause Signal in the *His* Operon Leader Region," Cathleen Chan, graduate student, Molecular Genetics Program. Room 322 Rebstock Hall.

4 p.m. Central Institute for the Deaf Research Seminar. "Ears, Brains and Hearing Aids: Do We Know What We're Doing Yet?" Mead C. Killion, president, Etymotic Research Co., Elk Grove Village, Ill. Second Floor Aud., Clinical Sciences Research Bldg., 909 S. Taylor Ave. 652-3200, ext. 671.

4 p.m. 18th Annual Mildred Trotter Lecture. "Huntington's Disease: Genetics, Pathophysiology and Therapeutic Strategies," Anne B. Young, Julieanne Dorn Professor of Neurology, Harvard Medical School, Cambridge, Mass. Moore Aud., 660 S. Euclid Ave.

4:30 p.m. Math colloquium. "Integrable Systems in Differential Geometry," Franz Pedit, prof. of mathematics, U. of Massachusetts, Amherst. Room 199 Cupples I Hall. (Tea: 4 p.m. in Room 200.) 935-6726.

Friday, May 13

9:15 a.m. Pediatric Grand Rounds. "Neurofibromatosis Type I: More Than NF," David H. Gutmann, asst. prof. of neurology, pediatrics and genetics. Clopton Aud., 4950 Children's Place.

Noon. Cell biology and physiology seminar. "The Small GTPase Rab5 and Endocytosis," Guangpu Li, research assoc., Dept. of Cell Biology and Physiology. Room 423 McDonnell Medical Sciences Bldg. 362-6950.

4 p.m. Anatomy and neurobiology seminar. "The Interface Between Basic and Clinical Neuroscience Research: Opportunities and Bottlenecks," Ralph G. Dacey Jr., prof. and co-head, Dept. of Neurology and Neurological Surgery. Room 928 McDonnell Medical Sciences Bldg.

Saturday, May 14

9 a.m. Saturday Morning Neural Sciences Seminar Series: MRN-Magnetic Resonance Neuroscience. "Fast MR Imaging and MRI of Acute Stroke," Weili Lin, instructor in radiology. Erlanger Aud., McDonnell Medical Sciences Bldg.

Monday, May 16

4 p.m. Biology seminar. "Probing Plant Starch Metabolism Via Transgenes," Ganesh Kishore, director, New Product Technology, Monsanto Agriculture Group, St. Louis. Room 322 Rebstock Hall. 935-6287.

4 p.m. Earth and planetary sciences colloquium. "Probing the Earth Beneath Australia and Surrounding Plate Boundaries: The Fiji-Tonga Slab and the SKIPPY Project," Rob Van Der Hilst, Australia National U., Canberra. Room 362 McDonnell Hall. 935-5610.

4 p.m. Immunology seminar. "The JAK-STAT Pathway: Polypeptide Activation of Genes From the Cell Surface," James E. Darnell Jr., prof., Dept. of Molecular and Cell Biology, Rockefeller U., New York, N.Y. Moore Aud., 4580 Scott Ave. 362-8748.

5:05 p.m. Central Institute for the Deaf Seminar on Progressive Sensory Loss. "Rehabilitation of Patients With Progressive Multiple Sensory Losses Including Use of Corrective Lens and Low-Vision Aids," Carolyn M. Baum, Elias Michael Director and asst. prof., Program in Occupational Therapy and Dept. of Neurology and Neurological Surgery, and Judy Bachelder, asst. prof., Graduate Program in Occupational Therapy. Second Floor Aud., Clinical Sciences Research Bldg., 909 S. Taylor Ave.

Wednesday, May 18

7:30 a.m. Obstetrics and Gynecology Grand Rounds. "Cervical Dilation and Vaginal Breech Extraction to Manage Second and Third Trimester Pregnancy Loss," Catherine Dean, instructor, Dept. of Obstetrics and Gynecology. Clopton Aud., 4950 Children's Place.

4 p.m. Biochemistry and molecular biophysics seminar. "Transcription of Inner Membrane Proteins in *E. coli*," John E. Hearst, Dept. of Chemistry, U. of California, Berkeley. Cori Aud., 4565 McKinley Ave. 362-0261.

Thursday, May 19

Noon. Genetics seminar. "Inherited Neurodegeneration and Ion Channels in *C. elegans*," Monica Driscoll, asst. prof., Dept. of Molecular Biology and Biochemistry, Rutgers U. Bush Campus, Piscataway, N.J. Room 816 McDonnell Medical Sciences Bldg. 362-7072.

Noon. Pediatric research seminar. "Mitochondrial Biogenesis," Arnold W. Strauss, prof. of pediatrics and molecular biology and pharmacology. Third Floor Aud., St. Louis Children's Hospital. 454-6128.

Friday, May 20

9:15 a.m. Pediatric Grand Rounds. "Congenital Ptosis: Diagnosis and Management," Philip L. Custer, assoc. prof. of clinical ophthalmology, Dept. of Ophthalmology and Visual Sciences, and director, The Orbital Center, Barnes Hospital. Clopton Aud., 4950 Children's Place.

Noon. Cell biology and physiology seminar. "Multiplication and Division: The Diverse Functions of Calmodulin," Trisha N. Davis, assoc. prof., Dept of Biochemistry, U. of Washington, Seattle. Room 423 McDonnell Medical Sciences Bldg. 362-6950.

Miscellany

Friday, May 13

9 a.m.-5 p.m. Social Thought and Analysis conference. "Legal Change and Cultural Pluralism," a multidisciplinary conference examining how societies with diverse populations are using and changing their legal systems. Participants include Leila Sadat-Wexler, prof. of law; Jack Donnelly, prof. of international studies, U. of Denver; Marc Galanter, prof. of law and South Asian studies, U. of Wisconsin; Robert Hayden, prof. of anthropology, U. of Pittsburgh; and Sally Merry, prof. of anthropology, Wellesley College. Alumni House. 935-4860.

7:30 p.m. Fine Arts Institute weekend workshop. Stan Strembicki, assoc. prof. of art, will demonstrate techniques for photographing the nude. Workshop includes a slide lecture and lighting demonstration. Through May 15. Third Floor, Lewis Center, 721 Kingsland. Participants supply camera and film. Cost: $145. To register, call 935-4643.

Saturday, May 14

8:30 a.m.-noon. Office of Continuing Medical Education seminar. "Diagnosis and Management of Adult Sleep Disorders: A Practical Approach to a Multidisciplinary Field." Welcoming speech by seminar chair John W. Miller, asst. prof. of neurology and head, Section of Clinical Neurophysiology and director, Sleep Disorders Laboratory, School of Medicine. Adam's Mark Hotel, Fourth and Chestnut. For schedule, credit and cost info., call 362-6893.

Monday, May 16

7-9 p.m. Office of Continuing Medical Education seminar. "Internal Medicine Review." The topic is cardiology with Michael Goldmeier, instructor in medicine, Division of Cardiology, Kenneth Phillips, instructor, Dept. of Medicine, and Allen D. Soffer, clinical instructor, Dept. of Medicine. Steinberg Amphitheatre, Jewish Hospital. For schedules and cost info., call 362-6893.

Tuesday, May 17

9 a.m. Biomedical engineering workshop. This daylong workshop will feature 17 speakers from the schools of Engineering and Medicine. Room 101 Lopata Hall. 935-6164.

Friday, May 20

7:30 a.m. Office of Continuing Medical Education seminar. "Contemporary Topics in Cardiothoracic Anesthesia." Welcoming speech by Demetrios G. Lappas, prof., Dept. of Anesthesiology. Through May 21. Wohl Aud., 4960 Children's Place. For schedule, credit and cost info., call 362-6893.

Saturday, May 21

8 a.m. Office of Continuing Medical Education seminar. "Controversies in Contemporary Imaging." Presented by the Cardiovasular Division and Office of Continuing Medical Education in conjunction with the Society of Nuclear Medicine, Missouri Valley Chapter. St. Louis Marriott West, 660 Maryville Centre Drive. For schedule, credit and cost info., call 362-6893.

Commencement Week activities

For more information about any of the following Commencement Week events or costs, call the Senior Hotline at 935-5909.

Wednesday, May 18

7 p.m. School of Engineering and Applied Science Recognition Ceremony for graduate students. Edison Theatre. Reception immediately following in Bowles Plaza. (Rain location: Lower level of Mallinckrodt Center.)

7:30 p.m. University College Recognition Ceremony. Simon Hall Aud. Reception immediately following in Simon Courtyard.

Thursday, May 19

11 a.m. Eliot Honors Convocation for honor students, their parents and guests. Field House, Athletic Complex.

2 p.m. School of Engineering and Applied Science Recognition Ceremony for undergraduates. Field House, Athletic Complex. Reception immediately following in Lopata Gallery.

4:30 p.m. College of Arts and Sciences Recognition Ceremony. Brookings Quadrangle. (Rain location: Field House.)

9 p.m. Commencement Reception at the Ritz. Dancing and dessert for students, faculty, administrators, families and friends. The Ritz-Carlton Hotel, 100 Carondelet Plaza, St. Louis.

Friday, May 20

8 a.m. Degree Candidates Assemble. Brookings Quadrangle.

8:30 a.m. Commencement Exercises in Brookings Quadrangle. (Rain time: 10 a.m.) Immediately following Commencement, the deans of the various divisions will hold a series of receptions where diplomas will be distributed individually. Refreshments will be available for members of the graduating class, their families and friends.

Reception locations: **College of Arts and Sciences:** north side of Graham Chapel. (Rain location: west side of Olin Library.) **George Warren Brown School of Social Work:** diploma ceremony in Graham Chapel, reception immediately following at east arch of Brown Hall. (Rain location: Brown Hall Lounge.) **Graduate School of Arts and Sciences:** Edison Theatre, reception immediately following in Gallery and Gargoyle, lower level of Mallinckrodt Center. **John M. Olin School of Business:** diploma ceremony in Field House, Athletic Complex, reception immediately following in Simon Hall. **Program in Occupational Therapy:** luncheon reception in Holmes Lounge, Ridgley Hall, diploma ceremony immediately following in Graham Chapel. **School of Architecture:** reception in Givens Hall, diploma ceremony immediately following in The Meadow, north of Givens Hall. (Rain location: Brown Hall Aud.) **School of Engineering and Applied Science:** Lopata Gallery and Lopata Plaza between Jolley Hall and Cupples II Hall. **School of Fine Arts:** diploma ceremony in Brown Hall Aud., reception immediately following on Steinberg Hall Terrace. (Rain location: Gallery of Art, Steinberg Hall.) **University College:** Women's Bldg. Lounge.

Noon ceremonies: The Health Administration Program: diploma ceremony in Carl V. Moore Aud., reception immediately following in M. Kenton King Faculty Center, Medical School Library. **The School of Law:** diploma ceremony in Brookings Quadrangle, reception following in Seeley G. Mudd Law Bldg. (Rain schedule: diploma ceremony at 3 p.m. in the Field House, Athletic Complex.) **The School of Medicine:** luncheon in Grand Ballroom of Cervantes Convention Center, America's Center, 801 Convention Plaza. Senior program and diploma ceremony will immediately follow in the Lecture Hall, Cervantes Convention Center.

Calendar guidelines

Events sponsored by the University — its departments, schools, centers, organizations and its recognized student organizations — are published in the Calendar. All events are free and open to the public, unless otherwise noted.

Calendar submissions should state time, date, place, sponsor, title of event, name of speaker(s) and affiliation, and admission cost. Quality promotional photographs with descriptions are welcome. Send items to Judy Ruhland at Box 1070 (or via fax: 935-4259). Submission forms are available by calling 935-4926.

The deadline for all entries is noon Tuesday one week prior to publication. Late entries will not be printed. The Record is printed every Thursday during the school year, except holidays, and monthly during the summer. If you are uncertain about a deadline, holiday schedule, or any other information, please call 935-4926.

Six to receive honorary degrees during Commencement — Continued from page 1

tween smoking and lung cancer, doctor of science.

Sen. Bill Bradley

Author of tax reform legislation

When Bill Bradley was elected to the U.S. Senate in 1979 at the age of 35, he was its youngest member. He also held the distinction of being the Senate's best athlete.

Sen. Bill Bradley

For the decade before his successful Democratic bid, Bradley played professional basketball with the New York Knicks. Since then, the Crystal City, Mo., native has established himself as a respected legislator and leading supporter of measures to improve the economy, the environment, education, families and race relations.

A member of the Senate Finance Committee, Bradley is widely known as author of the Proposed Fair Tax, which eventually became the Tax Reform Act of 1986. By eliminating most corporate and individual loopholes in the tax code, the legislation sharply reduced tax rates. His reform, which has been called the most important anti-poverty program in 15 years, required taxpayers who had avoided paying taxes to pay their fair share, gave tax relief to families, and ensured that six million low-income working people would pay no federal income tax.

Bradley graduated from Princeton University in 1965 with honors in American history. He was awarded a Rhodes Scholarship to Oxford University, where he earned a graduate degree after studying politics, philosophy and economics.

Rita F. Dove

Nation's poet laureate

Rita F. Dove is the nation's first African-American poet laureate and, at 40, youngest to hold the position. As poet laureate and consultant in poetry at the Library of Congress, Dove is in charge of setting the library's literary calendar. Her plans during her tenure have included combining poetry with other art forms and linking communities electronically through poetry town meetings. Dove, who also is the Commonwealth Professor of English at the University of Virginia in Charlottesville, received the 1987 Pulitzer Prize for her 1986 book of poems titled *Thomas and Beulah.*

Rita F. Dove

In addition to *Thomas and Beulah,* Dove has published the poetry collections *The Yellow House on the Corner* (1980), *Museum* (1983), *Grace Notes* (1989) and *Selected Poems* (1993), as well as the short story collection *Fifth Sunday* (1985), the novel *Through the Ivory Gate* (1992), and the verse drama *The Darker Face of the Earth* (1994).

Dove was a 1970 Presidential Scholar as one of the top 100 U.S. high school graduates that year. She graduated summa cum laude from Miami University in Oxford, Ohio, in 1973, attended the Universität Tübingen in Germany in 1974-75 as a Fulbright fellow and received her master of fine arts degree from the University of Iowa in Iowa City in 1977.

Richard E. Leakey

Defender of African wildlife

Richard E. Leakey is a renowned paleoanthropologist and ardent conservationist who has made pioneering discoveries of human origins and brought international attention to the problems of wildlife conservation in Africa. Leakey, who recently resigned as director of the Kenya Wildlife Service, has waged an intensive five-year campaign to save Kenya's elephants from extinction. His efforts have virtually halted elephant poaching in Kenya's wildlife parks, where the elephant population had dwindled from more than 100,000 in the 1970s to fewer than 20,000 in 1988.

Richard E. Leakey

As the second son of famed paleoanthropologists Mary and Louis Leakey, he learned from the masters. He pursued a career in paleoanthropology and fossil hunting for many years before turning to wildlife conservation in 1989. Among his fossil discoveries of human ancestors was a 1.9 million-year-old skull of *Homo habilis* and the most complete skeleton of *Homo erectus*, the immediate precursor to *Homo sapiens,* and considered by many experts to be the most important early human skeleton ever found. The skeleton changed the notion that early humans were short.

In January the National Geographic Society presented Leakey with the prized Hubbard Medal "for his achievement and courage in protecting and preserving earth's wildlife and illuminating the earliest origins of human life."

Jane Loevinger

Pioneer in field of ego development

Jane Loevinger, Ph.D., is an internationally recognized authority and pioneer in the fields of ego development and psychometrics, the testing and measuring of mental and psychological ability. Last year, Loevinger, Washington University's William R. Stuckenberg Professor Emerita of Human Values and Moral Development, was honored with two national awards for her work in psychological measurement. The Educational Testing Service honored Loevinger with its Award for Distinguished Service to Measurement and the Society for Personality Assessment presented her with the Bruno Klapfer Distinguished Contribution Award.

Jane Loevinger

She is best known for designing the classic Sentence Completion Test for measuring ego development. The project began with a study of women's attitudes toward what used to be called women's roles and developed into a study on women's attitudes in general. Later, it was revised to include men and children. The test, which has been translated into several foreign languages during its development and refinement over the past 25 years, has shown how word choice reveals a person's outlook on life and on relations with other people.

Loevinger received her bachelor's degree, magna cum laude, in 1937 and her master's degree in 1938 from the University of Minnesota and her doctorate in 1944 from the University of California at Berkeley. She joined the Washington University faculty in 1960 and in 1985 was the first professor named to the University's Stuckenberg Chair of Human Values and Moral Development. She is married to Samuel I. Weissman, Ph.D., professor emeritus of chemistry at Washington.

I. E. Millstone

Visionary engineer, philanthropist

A 1927 graduate of Washington University with a degree in architectural engineering, I. E. Millstone founded his own construction company, Millstone Construction, at the beginning of the Depression. Over the decades, his company's projects have included such St. Louis landmarks as Crestwood and Northwest plazas, the Mercantile Tower, the Federal Building, the Doctor's Building and Busch Memorial Stadium. The company, which also built the country's first public housing project in St. Petersburg, Fla., was a major player in reinvigorating the St. Louis inner city with such projects as Laclede's Landing and many neighborhood rehabilitation works.

I. E. Millstone

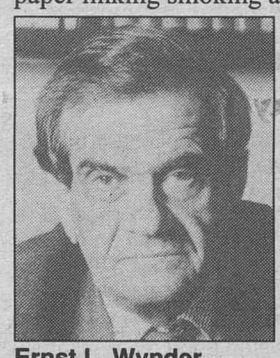
As a member of the Washington University Board of Trustees since 1964, Millstone has chaired and served on numerous planning committees. He established scholarships in engineering and arts and sciences and provided support for the engineering school and the renovation of the University's Athletic Complex. The Athletic Complex pool as well as a student lounge and plaza between Bryan and McMillen halls bear his name.

After being in the construction business for more than 50 years, heading up Millstone Construction Inc., Millstone remains active in the business world as president of K&M Investors and Millstone Charitable Foundation.

Ernst L. Wynder

First to show smoking/cancer link

Former U.S. Surgeon General Jesse Steinfeld, M.D., recently commented that Ernst L. Wynder's 1950 "landmark" paper linking smoking and lung cancer "deserves a place among the classics of modern medical literature." Wynder made his influential discovery through a study that he conducted as a Washington University medical student. He also has conducted research linking smoking to cancer of the esophagus, larynx, bladder and oral cavity, and he was among the first to show that a high-fiber, low-fat diet helps reduce heart disease and cancer of the breast, colon and prostate.



Ernst L. Wynder

Wynder, a pioneer in the field of preventive medicine, established the American Health Foundation in 1969; today it is the largest cancer prevention center in the country. He has served as its president and medical director since he founded the research organization, which also is devoted to the prevention of other chronic diseases such as heart disease and stroke.

He received his bachelor's degree from New York University in 1943, then earned a second bachelor's degree and his medical degree from Washington University in 1950. Wynder has been on staff at the Sloan-Kettering Institute for Cancer Research in New York since 1952, when he was named the first head of the Section of Epidemiology.

He is an adjunct member at Sloan-Kettering and is a clinical professor of community and preventive medicine at New York Medical College in Valhalla, N.Y.

Front-line staff works across departmental lines — Continued from page 1

"The office representatives talked about every process, from when a student was admitted to the loan process to orientation to registering for class to paying the bills to what happens in the deans' offices," said Gaines, chair of the Nuts and Bolts Committee.

"Everyone was surprised at how much you don't know about what goes on just a couple steps away," added Stuart Yoak, University registrar. "In the focus groups, students were asked specifically what their problems and concerns were and what we could do to help. Students complained about being shuffled from one place to another. Now the front line is better able to answer their questions."

Committee members have discovered new ways to be more effective and efficient by learning the processes of other offices. At one meeting, for example, Gary Sparks, director of transportation, explained how students apply for parking permits. Lois Newall, head cashier, heard his presentation, recognized that her office had much of the same equipment, and together they devised a way for students to get parking permits through the Cashier's Office as well as the Transportation Office.

This attitude has created a new atmosphere of risk-taking because employees aren't afraid to question and change the status quo in favor of a more effective method.

"Employees are challenging each other to define what they do and defend the legitimacy of their methods," said Dennis Martin, assistant provost and director of financial aid.

Steigelman said the efforts of the Nuts and Bolts Committee have had an unexpected benefit.

"It has created tremendous staff development opportunities," he said. "Because of Nuts and Bolts, employees have had opportunities to develop in ways they would not otherwise have been able to. They are knowledgeable about new and different processes."

In only a few months, the committee has recommended several changes that already have been implemented, like including representatives of each student-oriented office in the activities of first-year student orientation. And the group has several projects lined up, including creating a master rolodex that lists common questions, answers and sources of additional information for the front-line staff in each office. Their efforts have the support not only of the CSEC and Brookings Team, but also the University Management Team, all of which are very interested in input from the front-line staff — the people who have direct contact with students.

"We're engaging the front-line staff, the real experts in the process. They're the ones who solve daily problems, put out the brush fires," Martin said. "We have been trying to discover how the broad goals of the University Management Team can be integrated into the daily function of people's jobs. We decided that it was important for the front line to be communicating across departmental lines as their managers are."

Willenborg put it this way: "The management is at the worker bee level, which is why this is so successful."

In addition to the employees mentioned above, other members of the Nuts and Bolts Committee are: Marcia Hayes-Harris, assistant director of Residential Life; Phyllis Hawk, receptionist in the Office of Undergraduate Admission; Cindy Newall, assistant registrar in the College of Arts and Sciences; Kim Pedroli, student loan clerk in Student Loans; and Barb Thomas, student loan collector in Student Loans.

— Susannah Webb

U.S. Senior Olympics track meet cancelled

Due to a lack of entries, the United States National Senior Olympics (USNSO) Senior Open Track and Field Meet has been cancelled.

The meet was scheduled to be held June 15-19 at Bushyhead Track and adjacent fields.

Board appoints committee to search for Danforth's successor

The Board of Trustees will begin the important task of selecting the new chancellor of Washington University.

At the Board of Trustees' annual meeting on May 6, William M. Van Cleve, chair of the Board, announced the appointment of the Search Committee composed of trustees, alumni, faculty, administration/staff and students. Van Cleve will chair the Search Committee. James W. Davis, professor of political science, will serve as committee co-chair.

The following faculty will serve on the search committee: Joseph J.H. Ackerman, professor and chair, Department of Chemistry; Kathleen Brickey, the George Alexander Madill Professor of Law; Harvey R. Colten, the Harriet B. Spoehrer Professor of Pediatrics and head, Department of Pediatrics; Jerome R. Cox Jr., professor of computer science; Paul Michael Lutzeler, the Rosa May Distinguished University Professor in the Humanities and professor of Germanic languages and literatures; James E. McLeod, dean of the College of Arts and Sciences; John V.C. Nye, associate professor of economics; Enola E. Proctor, professor of social work; and David C. Van Essen, the Edison Professor of Neurobiology and head, Department of Anatomy and Neurobiology.

Shirley K. Baker, dean of University libraries, will represent the administration/staff on the search committee.

The following trustees will serve on the search committee: B.A. Bridgewater Jr., Andrew B. Craig III, Earle H. Harbison Jr., Mary Ann Krey, Lee M. Liberman, Paul L. Miller Jr. and Sarah S. Wallace.

Martin Schneider will represent alumni.

Four students will serve on the committee: Susan M. Culican, M.D./Ph.D. candidate at the School of Medicine; P. Todd Davis, Ph.D. candidate in English; Lisa M. Jericho, junior, John M. Olin School of Business; and Charlotte M. Jones, junior pre-medical in psychology and biology in the College of Arts and Sciences.

The committee's responsibilities include: developing desirable criteria for review and approval by the Board; identifying names of prospects through consultation with the Washington University community and knowledgeable people throughout the country; screening, selecting and recruiting candidates for interviews; conducting interviews; and recommending candidate(s) to the Board.

Task force recommends University provide greater incentives for good teaching — *continued from page 1*

room. "There needs to be a reinforcement of the learning process outside of the classroom. We need to build rapport outside the classroom," Wheeler said.

Residential life, the task force asserts, should be viewed as integral to the University's educational goals. Living/Learning Centers — already successful at several universities, such as the University of Michigan and Northwestern — can serve as a model for integrating academic learning and community living.

"A Living/Learning Center could be so simple as a floor of a residence hall where there is some kind of intellectual theme, or course work in common," said Gary Hochberg, Ph.D., a task force member and associate dean for the undergraduate program at the School of Business. "Some of the study groups could go on there instead of the academic campus," he said.

Using an academic theme, Living/Learning Centers provide formal or informal, credit or non-credit learning opportunities. The centers have faculty advisers and may include an apartment space for one or more faculty. The task force plans to recommend that the development of a Living/Learning Center serve as a pilot for any housing renovation or construction and as a model for future planning.

The South Forty is an ideal location for developing curricular and co-curricular learning activities involving faculty, according to the task force.

The task force emphasizes the need for developing bonds with students and promoting a sense of community. "I think when students develop good relationships with faculty, as they often do in biology labs, one of the benefits is that it makes students feel good about their whole experience," Wheeler said. "We need to do that in more areas."

To reinforce the sense of community at Washington University, the task force also will recommend the following: development of a University-wide program for new faculty orientation (providing them with basic information about the structure of the University, its individual schools, basic degree requirements and administrative procedures); attending more energetically to the distinctive needs of international and minority students; administrative leadership to facilitate greater cooperation between the five undergraduate schools; and greater University support for service programs, such as those administered by the Campus Y.

Teaching vs. research

The task force also tackled the question: How can the University encourage effective teaching while maintaining its commitment to research? This is a concern confronting every major research university, the teaching subcommittee concluded. It acknowledged that the University provides greater incentives for research than it does for teaching, and that tangible inducements must be offered. The task force will recommend that the University make its commitment to excellent teaching explicit through salary increases, promotions and teaching awards.

> "There needs to be a reinforcement of the learning process outside of the classroom."
>
> — **Burton Wheeler**

From the start the University should stress the importance of good teaching to new faculty. Recruitment efforts should include a teaching component, the task force says. For example, the teaching record of candidates should be taken into serious consideration during the hiring process. Departments might ask candidates to deliver lectures to classes, discuss their approaches to teaching, or provide examples of class materials or syllabi. More detailed evidence of teaching skills should be required at tenure reviews as well.

To help improve teaching, the task force also will recommend increasing the resources of the Teaching Center.

Skill assessment

However, the teaching subcommittee pointed out, teaching must be evaluated before it can be rewarded. The subcommittee proposes a three-way teaching assessment system, including student, peer and self evaluations.

In a faculty survey conducted by the task force, the vast majority (more than 90 percent, or 376 of the 408 survey respondents) said they regularly read their students' evaluations. However, many faculty were concerned that student evaluations, which are distributed at the end of the semester, may not be good barometers. The students' perspective on the class may be influenced by the grade they expect to receive.

"The principal concern about student evaluations is that they recognize performance skill ... that students may be less interested in the subject than whether their interest is maintained," Wheeler said.

The task force proposes a University-run student evaluation survey. In addition, it recommends frequent peer evaluation of teaching by both tenured and untenured faculty. This type of evaluation done in an atmosphere of support could bring constructive comments. Faculty should visit other instructors' classes, look over evaluations and examine teaching materials. Thirdly, self-evaluation should be required of all faculty.

Sixty-four percent of the survey respondents said they would appreciate the chance to give serious thought to their teaching and provide an annual assessment.

In the area of skill assessment, the task force also recommends closer monitoring of advising and periodic departmental evaluations of undergraduate programs.

Curricular issues

Curricular issues also were addressed by the task force. Faculty have indicated that students' writing must be improved, and that reliance on first-year "English Composition" to provide training is insufficient. The task force will suggest increasing the number of courses requiring extensive writing and providing departments added instructional assistance for those courses.

Wheeler said these courses should be mandatory in all majors. "We need something at the sophomore, junior and senior level to reinforce writing," he said.

Other recommendations will include: studying scheduling issues with particular attention to the faculty's preference for 90-minute time slots, and to the ways scheduling creates problems for students in selecting courses; giving students more experience with information retrieval, using library personnel when appropriate; developing in each academic unit ways to provide seniors research and independent study opportunities; attending more responsibly to the issues of academic integrity; and establishing special funds in each school for improving existing courses and for developing pedagogy using new technologies.

Wheeler said that the University possesses many of the resources needed to achieve an appropriate balance between its desire for excellence in undergraduate education and excellence in its other missions, including research and the education of graduate and professional students.

Wheeler conceded that members of the University community may not agree with all of the recommendations. "We are quite aware that many of our generalizations have a counter position," Wheeler said. "There are problems with the student generalizations. Students are not all alike. Some students don't care about co-curricular activities. Some students just want to get a degree. Some are more interested in connecting with one another.

"But we now have a small group of faculty who know a great deal about this institution. And we can build some bridges between segments of the community."

— Deborah Parker

Campus Watch

The following incidents were reported to the Hilltop Campus Police Department May 2-6. Readers with information that could assist the investigation of these incidents are urged to call 935-5555. This list is provided as a public service to promote campus safety.

May 2

12:10 p.m. — The sign for the Bear Necessities Shop in Wohl Center was reported stolen sometime between 5 p.m. April 27 and 11:45 a.m. May 2. *4:54 p.m.* — A vehicle belonging to a staff member was reported stolen from the second level of the Millbrook parking garage sometime between 12:45 and 4:54 p.m. The vehicle was recovered at 3:15 a.m. May 3 at Forest Park Community College, 6500 Oakland Ave. The steering column was damaged. *5:29 p.m.* — A staff member's vehicle was reported stolen from the parking lot at Millbrook and Skinker sometime between 8:30 a.m. and 5:29 p.m. The vehicle was recovered at 1:15 a.m. May 5 at 5949 Highland. The battery and tires were missing and the steering column was damaged.

May 3

10:17 a.m. — A staff member's Cross pen was reported stolen from a desk in the Bear Mart in Wohl Center between 12:30 and 2:30 p.m. April 28. *2:30 p.m.* — A vehicle belonging to a student was reported stolen from the parking lot by the tennis courts sometime between 9:30 a.m. and 2 p.m.

May 5

1:46 a.m. — A broken window was discovered on the north side of Wohl Center. The time of the occurrence is unknown. *12:39 p.m.* — A student's calculator was reported stolen from the second level of the Campus Bookstore sometime between noon and 12:30 p.m. *4:15 p.m.* — Graffiti was discovered on the first floor west stairwell and on the dumpster in the loading dock of Bryan Hall sometime between May 1 and 4:15 p.m. May 5. *10:21 p.m.* — A tire and wheel from a student's bicycle were reported stolen from the bicycle rack on the north side of Park House sometime between 10:30 a.m. May 3 and 7:30 p.m. May 5.

May 6

10:56 p.m. — Unknown person(s) removed the "Emergency Vehicles Only" sign from its pole in the Shepley Drive parking lot sometime between 10 and 10:55 p.m.

Officials attribute April Welcome success to campus cooperation

After a hectic spring, employees in the Office of Undergraduate Admission can let out a collective sigh of relief. The April Welcome numbers are in and they look good.

About 910 prospective admitted high school seniors visited Washington University during the month of April, up from last year's total. Of that number, 446 students, or 49 percent, have mailed in their deposits, indicating their decision to enroll for the 1994-95 academic year. Last year at this time, 46 percent of April Welcome visitors submitted deposits. Early indications for the University's overall yield also look good, said Harold Wingood, dean of undergraduate admission.

"During April Welcome, we saw what we already knew; bringing students and their families to campus to interact with current students, faculty and staff is the best way to showcase Washington University," Wingood said.

University officials attribute much of the success of April Welcome to the cooperation of the entire campus community.

"We've been successful in bringing in an excellent class and we owe that to the hard work of the admission office and of the whole campus community pulling together," said Provost Edward S. Macias, Ph.D. "We've learned that by working together, we can make the best possible case for attending Washington University."

Nanette Clift, associate director of admissions, singled out the efforts of current students in the overall success of April Welcome.

"We heard the prospective students say over and over again what a neat community Washington University is," Clift said. "The warmth of our students sold the visitors."

Faculty members granted tenure

At the May 6 meeting of the Board of Trustees, the following faculty were promoted with tenure or granted tenure on the Hilltop and School of Medicine campuses, effective July 1, 1994, unless otherwise noted.

Hilltop Campus

Promotion with tenure

Ronald R. King to professor of accounting; Joseph A. O'Sullivan to associate professor of electrical engineering; and William D. Richard to associate professor of electrical engineering.

Medical Campus

Granting of tenure

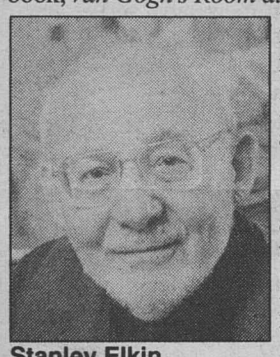
Peter A. Humphrey as associate professor of pathology (May 6, 1994); and Jacob C. Langer as associate professor of surgery (May 6, 1994).

Promotion with tenure

Anne C. Goldberg to associate professor of medicine; Osami Kanagawa to associate professor of pathology; Douglas M. Lublin to associate professor of pathology; Jeffrey F. Moley to associate professor of surgery (general surgery); Kenneth M. Murphy to associate professor of pathology; and Kevin A. Roth to associate professor of pathology.

Elkin named runner-up for major literary prize

Stanley Elkin, Ph.D., Merle Kling Professor of Modern Letters, was named a runner-up for the 1994 PEN-Faulkner Award for Fiction for his 16th book, *Van Gogh's Room at Arles*. The PEN-Faulkner Foundation of Washington, D.C., made the announcement.



Stanley Elkin

Founded in 1980 and administered at the Folger Shakespeare Library in Washington, the PEN-Faulkner is one of the country's most distinguished literary prizes. As a runner-up, Elkin receives $5,000. The judges, writers themselves, read 289 novels and story collections published during 1993.

Elkin was disappointed that he did not win the award. He said his daughter, Molly Elkin, will attend the May 21 awards ceremony in Washington to accept the runner-up designation for him. Molly Elkin told her father that she will inform the audience that he did not attend "because of his disability — not that disability, but the disability of his writer's ego," said Elkin, quoting his daughter.

Elkin's *Van Gogh's Room at Arles* is composed of three novellas. The first and longest, "Her Sense of Timing," concerns a wheelchair-bound professor in St. Louis whose wife leaves him the day before his annual party for his students. The second novella, "Town Crier Exclusive, Confessions of a Princess Manqué: 'How Royals Found Me "Unsuitable" to Marry Their Larry,'" focuses on a woman who falls in love with Lawrence, prince of England. The narrator, Louise Bristol, a self-admitted ordinary person and the prince's former fiancee, tells her tale in weekly tabloid installments.

The last novella, from which the book takes its name, concerns a professor named Miller who has won a foundation grant. He is sent to an academic retreat in Arles, France, where, by chance, he is assigned to Van Gogh's bedroom.

Among Elkin's other literary honors are a National Book Critics Circle Award for his 1982 novel *George Mills,* the saga of a thousand-year "curse" of "blue-collar blood" transmitted through generations of common men — all named George Mills. The men are tossed by fate against the unyielding upper classes, surrounded by those more battered than themselves.

For The Record

For The Record contains news about a wide variety of faculty, student and staff scholarly and professional activities.

Of note

Timothy J. Lensmire, Ph.D., assistant professor of education, has been selected as a 1994-95 National Academy of Education Spencer Postdoctoral Fellow. Lensmire will use the $35,000 fellowship award to conduct research on his next book project titled *Writing for Critical Democracy.* The academy, based at Stanford University, is an honorary educational society. ...

Mary M. Zutter, M.D., assistant professor of pathology, received an $875,156 four-year grant from the National Heart, Lung and Blood Institute for a research project titled "Megakaryocytic Regulation of the Alpha 2 Integrin Gene."

Speaking of

During the Association for Arid Lands Studies' 17th annual meeting held in Albuquerque, N.M., **Eugene B. Shultz Jr.**, Ph.D., professor emeritus of technology and human affairs, presented two papers. They were titled "Strategies for Replacing Woodfuel Plantations With Rootfuel in the Dry, Deforested Communal Areas of Zimbabwe" and "Clean Burning Biofuels to Replace Scarce Woodfuel in Arid Lands." Shultz is a past president of the association. ...

Michael Valente, Ph.D., associate clinical professor of otolaryngology (audiology), co-presented a miniseminar on "Hearing Loss in the Elderly and Methods to Improve Communication" at the American College of Health Care Administrators' meeting held in Dallas.

To press

Joseph J. H. Ackerman, Ph.D., professor and chair of chemistry, was appointed to the editorial board of In Vivo, a research journal based in Athens, Greece. ...

Sol L. Garfield, Ph.D., professor emeritus of psychology, was appointed to the editorial boards of Clinical Psychology and Psychotherapy, An International Journal of Theory and Practice and Crisis Intervention and Time-limited Treatment. The clinical psychology journal is published by Wiley in England. Crisis Intervention is published by Harwood Academic Publishers in Switzerland. ...

Daniel R. Mandelker, J.S.D., Howard A. Stamper Professor of Law, spoke on the federal Fair Housing Act at a conference held in Oxford, Ohio. He also spoke on the National Environmental Policy Act at conferences held in Denver and Washington, D.C. In addition, Michie Co. in Charlottesville, Va., recently published the third edition of his treatise titled *Land Use Law.* ...

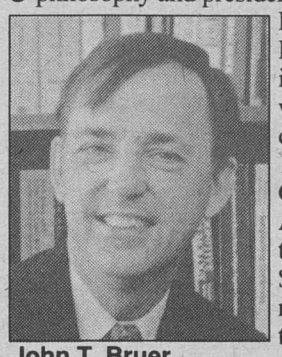
An article by **Charles McManis**, J.D., professor of law, titled "Intellectual Property Protection and Reverse Engineering of Computer Programs in the United States and the European Community," is being translated into Japanese by The American Committee for Interoperable Systems. The article, which was published in the High Technology Law Journal last year, will be circulated in Japan. The article also has been translated into Portuguese for publication in Brazil.

Guidelines for submitting copy:

Send your full name, complete title, department, phone number and highest-earned degree, along with a typed description of your noteworthy activity to For The Record, c/o Carolyn Sanford, Campus Box 1070, or p72245cs@wuvmd.wustl.edu. Items must not exceed 75 words. For information, call Sanford at 935-5293.

Bruer wins Grawemeyer Award in Education

John T. Bruer, Ph.D., adjunct professor of philosophy and president of the James S. McDonnell Foundation based in St. Louis, has won a University of Louisville 1994 Grawemeyer Award in Education. The $150,000 award recognizes ideas that have the potential to bring about significant improvement in education.



John T. Bruer

Bruer won the award for his book titled *Schools for Thought: A Science of Learning in the Classroom*, which was published by MIT Press in 1993. The book describes an innovative set of classroom interventions that dramatically improve the way students learn. The techniques are based on decades of educational research on how children learn. According to Bruer, "Teaching methods based on cognitive research could be the educational equivalent of the polio vaccine and penicillin."

The awards are named after Louisville industrialist H. Charles Grawemeyer, who graduated from the university in 1934. Grawemeyer set up an endowment for the annual prizes in 1984. Colleagues make nominations and entries are judged by experts from the University of Louisville and others in the nominees' fields. Winners get five annual payments of $30,000. Other Grawemeyer awards for 1994 were in music and in religion. An award for ideas to improve world order will be announced later.

Q&A

This issue introduces a new feature that will run regularly in the Record. Q&A provides an opportunity for faculty and staff to have their questions about the University answered by the appropriate administrators. Employees are encouraged to submit questions of broad interest to Q&A, c/o Susannah Webb, Campus Box 1070, or p72245sw @wuvmd.wustl.edu. Though employee questions will appear anonymously in the Record, please submit your full name, department and phone number with your typed question. For information, call Webb at 935-6603.

Question: How can we be constructing new buildings in this time of economic constraint? How is the University paying for these buildings?

Answer: Capital expenditures are financed differently from the annual operating budget. The latter pays for salaries, benefits, library books, financial aid, maintenance and other regular yearly expenditures. There are two usual ways for financing major capital projects like new buildings: 1) Borrow the funds. We do this when we expect the facility to produce an adequate stream of income to cover the interest on the borrowings and to pay back the amount borrowed in a reasonable period of time. Typically we borrow funds to pay for parking facilities and residence halls; sometimes borrowing can partially cover the cost of research facilities since some interest expenses can be recovered from the federal government; 2) Raise the money from outside. Whenever possible, we try to raise special funds for the construction of new academic buildings. Sometimes accumulated savings, as from clinical practice by medical school physicians, can be used. Also, the income from a piece of our endowment is restricted to capital expenditures. Thus, expenditures for capital do not subtract from the operating budget.

— Chancellor William H. Danforth

Question: I read the inplacement article in the Record and I have two questions. If my job is eliminated, will I be allowed to accept a lower graded position in order to continue my employment and benefits? If so, and I choose to accept such an opportunity, what would happen to my salary?

Answer: The University encourages managers to consider University employees for all open positions, but relies on the manager's judgment to determine whether any applicant is appropriately matched to a specific opening. At the discretion of the hiring manager or supervisor, employees may be given an opportunity to accept a lower graded position with a lower salary in order to maintain active employee status.

We cannot guarantee in all circumstances that employees who accept a lower graded position will be able to keep their current salary. Every manager on the Hilltop or the School of Medicine campuses who accepts a transfer employee from another department must determine if his/her budget can support that employee's current salary.

When a department restructures, employees within that department who accept jobs at lower grade levels within that department should discuss this issue with their manager.

One option, which was mentioned in the inplacement article you referred to, would be to provide the current salary but forgo salary increases for a period of time. The pay range for the grade eventually "catches up" to the employee's salary, and the employee then becomes eligible for increases. Another option, which is more likely in cases where many employees in a specific area face a restructuring, is that the employee's salary is reduced at the time of transfer to a lower graded job, but the employee maintains eligibility for regular salary increases based on performance.

— Gloria W. White, vice chancellor for human resources and affirmative action officer

— Denise McCartney, assistant dean for management services, School of Medicine

Question: Is there a central place for Hilltop staff to go for computing questions?

Answer: With many different computing systems in use on campus, there are a wide variety of computer questions and a number of places to find help. To assist staff and others with getting answers to various questions, an automated attendant telephone helpline has been initiated. The number is 935-7291. When called, the automated attendant provides the caller with a list of options that are intended to connect you with the person most knowledgeable in the particular area of the question or to provide other options to narrow the list of choices.

If you do not hear an option that you believe fits your particular situation, you may call extension 935-5300 and the person answering will try to find assistance for you. Please do not call this number first.

The helpline is a very new service and we are expecting to improve it over the next few months. We encourage users to give us suggestions for improving the service. Suggestions can be sent via e-mail to cfrecep@wuvmd.wustl.edu, or via campus mail to Ellen Kvaternik, Campus Box 1110.

— Bill D. Smith, director, Computing and Information Systems

Opportunities & personnel news

Hilltop Campus

The following is a list of positions available on the Hilltop Campus. Information regarding these and other positions may be obtained in the Office of Human Resources, Room 126 North Brookings Hall, or by calling 935-5990. Note: All positions require three letters of recommendation.

Administrative Assistant
940212. *Board of Trustees*. Requirements: Some college; typing 50 wpm with accuracy; efficient in word processing and data processing; creative in using and improving existing lists and forms, as well as devising new ones; enjoy bookkeeping, both keeping track of budgets and expenses and preparing reports for the Board of Trustees account; skilled in proofing minutes and reports; appreciate need for accuracy, even in routine things; interested in maintaining an organized filing system for efficient retrieval; pleasant with fellow workers and external constituencies on the phone; willing to work occasionally outside of office hours for setting up meetings. Clerical tests required.

Secretary, Part-time
940236. *Nursery School*. Requirements: High school graduate, some college preferred; ability to relate well with young children and parents; some hours needed in June and July (negotiable); knowledge of FIS or ability to learn; typing 40 wpm with accuracy. Clerical tests required.

Assistant Director/Teacher Supervisor
940237. *Nursery School*. Requirements: Degree in education, child development or related field; teaching experience with children ages 3 to 5 years; experience in formative supervision of teachers and student teachers preferred; an interest in teachers as researchers desirable, but not a prerequisite. Resume required.

Stock Clerk
940238. *Campus Stores*. Requirements: High school graduate; good physical condition for recurrent lifting of moderately heavy items; excellent attendance record; outstanding customer service attitude; must work evenings and Saturdays (10:30 a.m. to 7 p.m. Mondays-Thursdays and 10 a.m. to 4 p.m. Saturdays); retail experience desirable; typing required. Clerical tests required.

Departmental Secretary
940239. *Alumni and Development Programs*. Requirements: Certificate or associate's degree; strong background in personal computing; excellent verbal and written skills; pleasant; professional manner with co-workers, volunteers, vendors; ability to handle multiple tasks in an organized, accurate and timely manner; ability to work extra hours if necessary; typing 50 wpm with accuracy. Clerical tests required.

Coordinator of Student Activities
940240. *Student Activities*. Requirements: Bachelor's degree, master's degree preferred; experience with student group advising, event management, problem-solving. Duties: Work with other University departments to develop a comprehensive multicultural program, addressing the needs of minority students and educating the total population. Resume required.

Technical Sales Specialist
940243. *Campus Stores*. Requirements: Some college, bachelor's degree preferred; knowledge of personal computers and popular software; experience using a variety of microcomputer peripherals, such as modems and printers; ability to lift system components; available to work evenings and Saturdays. Resume required.

Receptionist/Typist, Part-time
940245. *School of Business*. Requirements: High school graduate; some college preferred; strong interpersonal skills, strong verbal and written communication skills; ability to work independently; typing 55 wpm with accuracy. Clerical tests required.

Administrative Secretary, Part-time
940246. *School of Business*. Requirements: Some college, certificate or associate's degree preferred; excellent telephone/interpersonal skills; professional appearance; knowledge of office procedures; ability to prioritize and handle multiple tasks; demonstrated written and proofreading skills; ability to work with minimal supervision; ability to function in a fast-paced environment; two or more years of secretarial experience preferred; typing 50 wpm with accuracy. Clerical tests required.

Administrative Secretary, Part-time
940247. *School of Business*. Requirements: Some college, certificate or associate's degree preferred; excellent telephone/interpersonal skills; professional appearance; knowledge of office procedures; ability to prioritize and handle multiple tasks; demonstrated written and proofreading skills; ability to work with minimal supervision; ability to function in a fast-paced environment; two or more years of secretarial experience preferred. Clerical tests required.

Office Manager
940248. *Engineering Communications*. Requirements: Accounting, printing/publications background. Duties: Develop and manage customer accounts, including quality and service; distribution of monthly invoices for billing and collection of past due accounts receivables; monitor accounts for fiscal year closure, including preparation of blanket orders for new fiscal year. Resume required.

Fund-raising Assistant
940251. *Consortium for Graduate Study.* Requirements: Two or more years full- or part-time office experience; computer skills; experience with WordPerfect for Windows preferred; experience with Alpha Four, Lotus 1-2-3 and Pagemaker helpful; typing 35 wpm with accuracy; excellent verbal and written communication and customer service skills; some bookkeeping or financial recordkeeping experience helpful. Clerical tests required.

RN/LPN, Part-time
940254. *Health Service*. Requirements: Registered nurses and/or licensed practical nurses for weekend infirmary. Duties: Nine months (i.e. 32 weekends) fall and spring semesters; shift may be 8 or 12 hours, Saturdays through Mondays. Resume required.

Programmer Analyst III
940255. *Computing and Communications*. Requirements: Bachelor's degree; good language and people skills; ability to work with minimal supervision; ability to learn quickly and adapt to new circumstances; experience with use and management of desktop computers; knowledge of desktop data base technology in a client/server environment highly desired; familiarity with DOS, Macintosh systems; knowledge of Novell, Appletalk, Windows, TCP/IP networking highly desirable. Resume required.

Secretary
940256. *University College*. Requirements: Some college; ability to handle multiple tasks and establish priorities under pressure; ability to meet public in a pleasant and professional manner; stamina; ability to hand deliver correspondence and packages across campus; typing 50 wpm with accuracy. Clerical tests required.

Executive Secretary
940258. *General Counsel's Office*. Requirements: Some college; experience in a law firm strongly desired; proficiency in WordPerfect 5.1; self-motivated and able to perform duties with minimal supervision; typing 60 wpm with accuracy; floating position between General Counsel's Office on Hilltop and School of Medicine campuses. Clerical tests required.

Administrative Assistant, Part-time
940259. *Department of Russian*. Requirements: Some college, bachelor's degree preferred; cooperative, helpful attitude; Washington University experience strongly desired; typing 50 wpm with accuracy. Schedule: 9 a.m.-1 p.m. Mondays-Fridays, additional hours required in the summer. Clerical tests required.

Assistant Law Librarian, Cataloging and Serials
Freund Law Library. Requirements: Master's degree in library science from an ALA-accredited institution; five years professional experience in technical services in a law library; management and supervisory experience; knowledge of automated systems, INNOPAC experience preferred; flexible. Duties: Manage all aspects of technical services, including cataloging, serials and the mail. Salary is competitive and commensurate with qualifications and experience. Position is available in June 1994. Inquiries and resumes should be sent to: Faye L. Couture, Associate Director, Freund Law Library, Campus Box 1171, Washington University School of Law, One Brookings Drive, St. Louis, Mo., 63130-4899.

Associate General Counsel
Requirements: An attorney interested in a diverse and challenging practice; three years of litigation or employment law; must have graduated in the top 25 percent of law school class; employment experience in intellectual property/technology transfer, real estate, tax or healthcare law is desirable. For more information, write to: Dorothy Humphrey, Office of the General Counsel, Washington University, Campus Box 1058, One Brookings Drive, St. Louis, Mo., 63130-4899.

Medical Campus

The following is a partial list of positions available at the School of Medicine. Employees who are interested in submitting a transfer request should contact the Human Resources Department of the medical school at 362-4920 to request an application. External candidates may call 362-7195 for information regarding application procedures or may submit a resume to the Human Resources office located at 4480 Clayton Ave., Campus Box 8002, St. Louis, Mo., 63110. Please note that the medical school does not disclose salary information for vacancies, and the office strongly discourages inquiries to departments other than Human Resources.

Executive Director, Billing and Collections
940680-R. *Administration.* Requirements: Bachelor's degree, preferably with an emphasis in business, finance or related field, MBA or MHA; seven to 10 years experience in large faculty, private practice or large healthcare facility; emphasis on management of patient accounts, budgeting and third-party reimbursement; good human relations and interpersonal skills.

Medical Research Technician
940741-R. *Pediatrics.* Requirements: Bachelor's degree with background in cell biology and/or biochemistry; ability to work independently under guidelines from supervisor; knowledge of tissue culture, protein purification and DNA analysis.

Administrative Coordinator
940744-R. *Internal Medicine.* Requirements: Bachelor's degree; three to five years related experience preferred; ability to organize and administer business affairs; supervisory experience highly preferred; accounting and computer literacy; familiarity with university systems highly preferred. Responsibilities: Assist in day-to-day operations of a division, providing necessary support in coordinating a variety of administrative functions, including financial accounting and program planning activities.

Secretary Receptionist
940762-R. *Biotechnology Center.* Schedule: Part-time, 20 hours per week, 10 a.m.-2 p.m. Mondays through Fridays. Requirements: High school graduate or equivalent; typing 50 wpm; word processing experience preferred; experience using FIS system highly preferred.

Medical Secretary
940765-R. *Pediatrics.* Requirements: High school graduate or equivalent with related experience in a medically related environment; knowledge of medical terminology; ability to operate routine office equipment; good organizational and telephone skills; typing 40 wpm; experience with WordPerfect.

Network Engineer
940772-R. *Medical Library.* Requirements: Bachelor's degree, preferably in computer science or electrical engineering; three to five years experience in network design and supervision; working knowledge of TCP/IP, Decnet, LAT, Appletalk, IPX, LAST, LAD protocols. Responsibilities include extensive walking and carrying of network tools.

Network Technician II
940773-R. *Medical Library.* Requirements: Associate's degree, preferably in computer science or electrical engineering; working knowledge of protocol stacks (TCP/IP, Decnet, LAT, Appletalk, IPX, LAST, LAD); experience configuring terminal serves and bridges a plus. Responsibilities include extensive walking and carrying of network tools and climbing ladders.

Social Worker MSW
940777-R. *Allergy and Immunology.* Requirements: Master's degree in social work; two years case management experience preferred; experience working with inner-city children and their families, and asthma patients, preferably children.

Secretary II
940778-R. *Comparative Medicine.* Requirements: High school graduate or equivalent; two years secretarial experience; some post-high school or business school preferred; typing 60 wpm; experience with WordPerfect; excellent communication and interpersonal skills.

Associate Director of Internal Operations
940788-R. *Administration.* Requirements: Bachelor's degree, preferably in business or finance-related field, advanced degree desired; five years related experience, including supervisory responsibility; knowledge of physicians' professional fee billing practices and principles, third-party payment procedures, regulations and medical collection techniques and policies; experience in a multispecialty group practice with emphasis on professional fee management and regulatory provisions preferred; knowledge of IDX desirable.

Associate Director of Departmental Support Service
940789-R. *Administration.* Requirements: Bachelor's degree, preferably in business or finance-related field, advanced degree desired; five years related experience, including supervisory responsibility; experience in multispecialty group practice with emphasis on professional fee management; regulatory provision and third-party payment for physician services; knowledge of IDX desirable.

Associate Director of Information Systems
940790-R. *Administration.* Requirements: Bachelor's degree in information system-related field, advanced degree desired; five years experience in information systems specific to group practice environment; direct experience managing diverse staff in complex environment; knowledge of computer system applications and hardware that support ambulatory or business operations; knowledge of IDX.